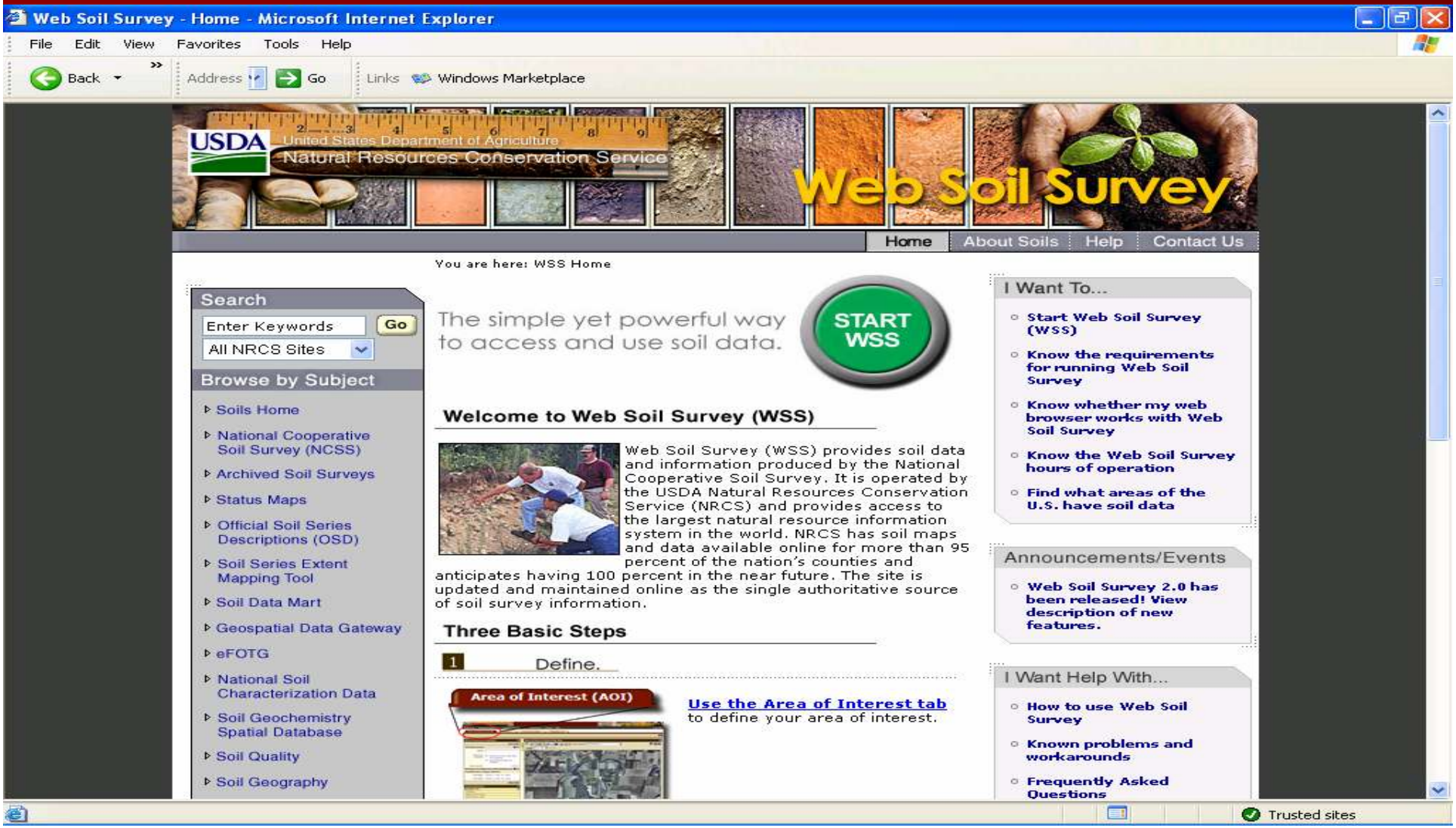
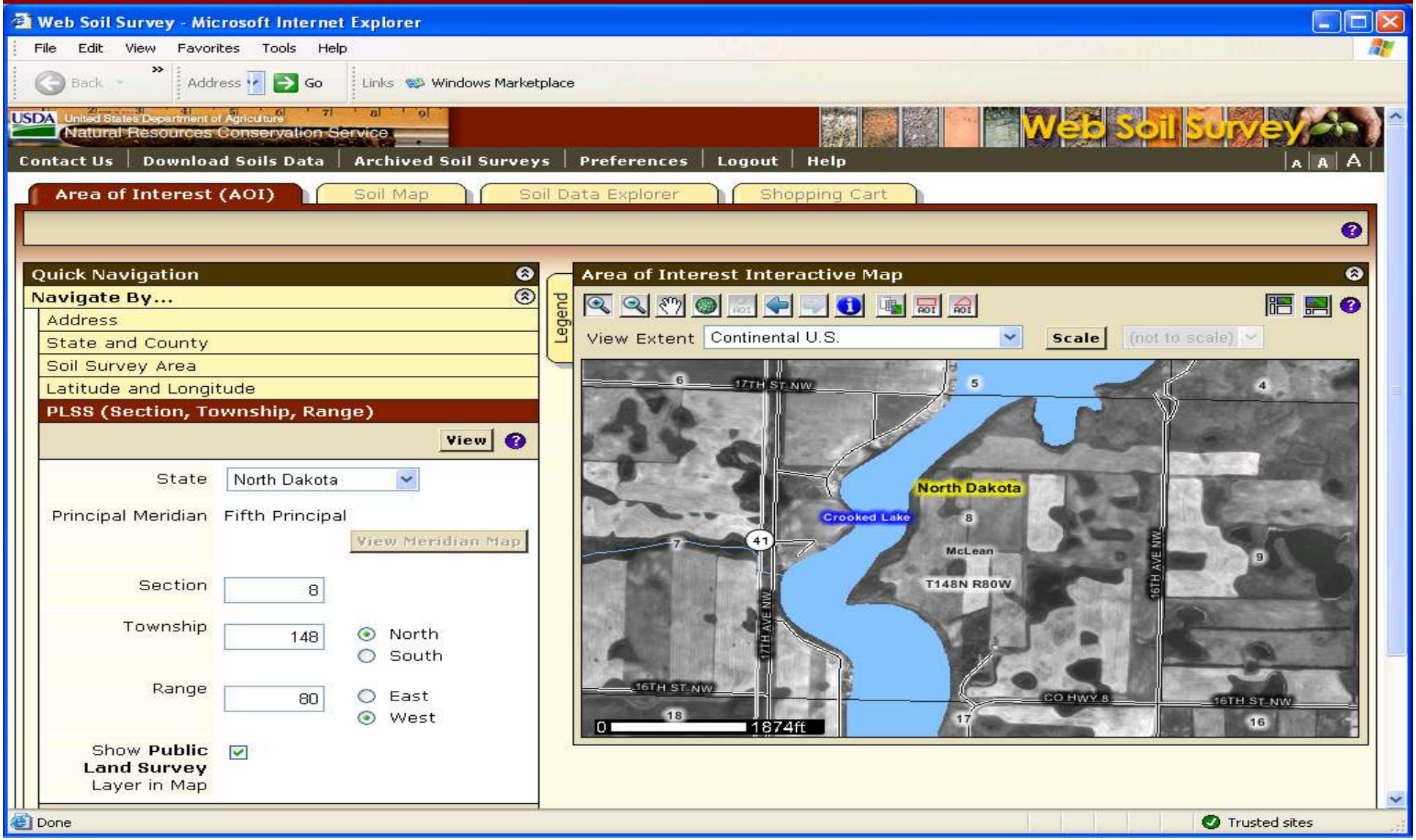
WEB SOIL SURVEY

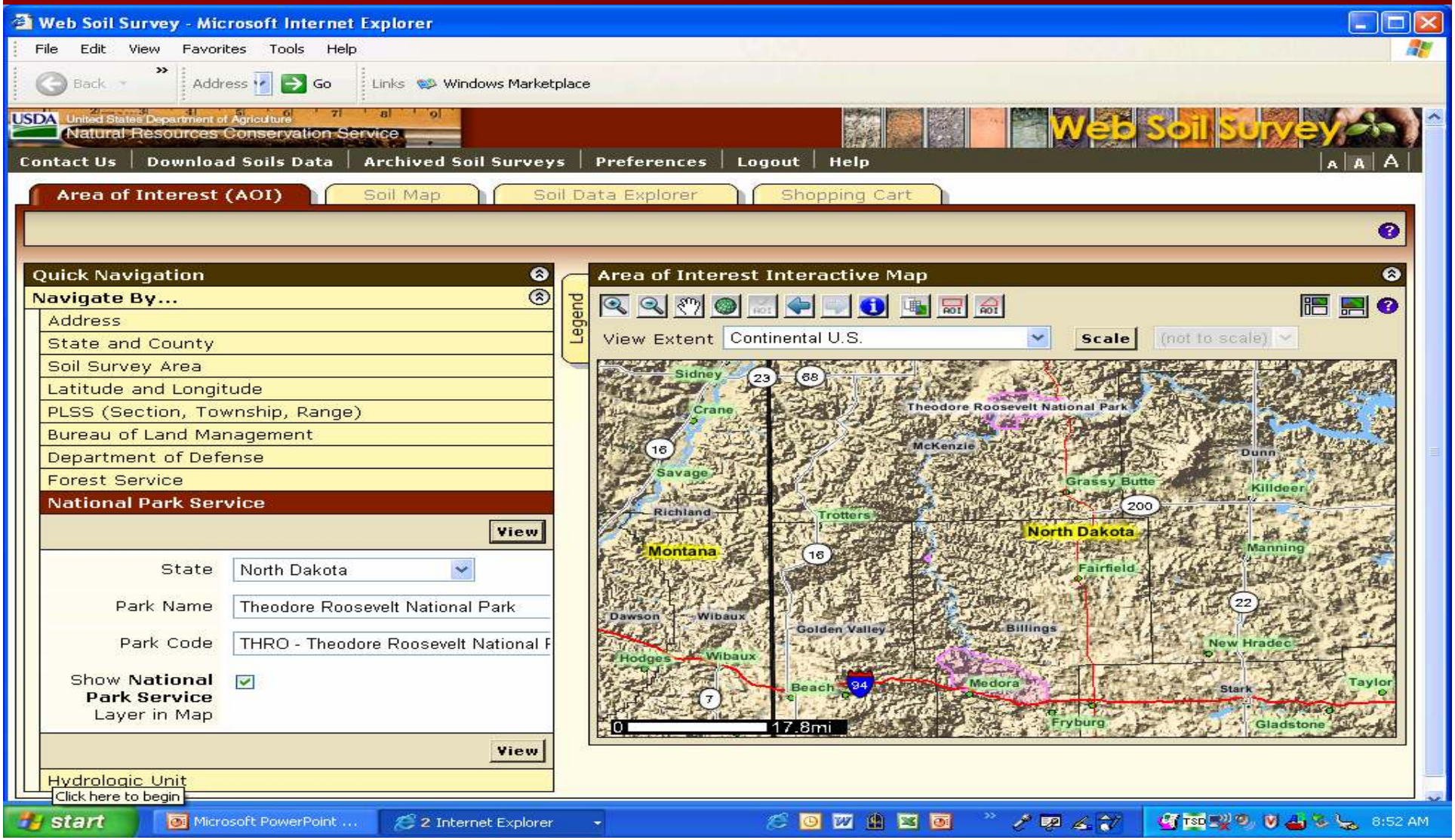
You spoke - We Listened



Navigate by Range, Township, and Section

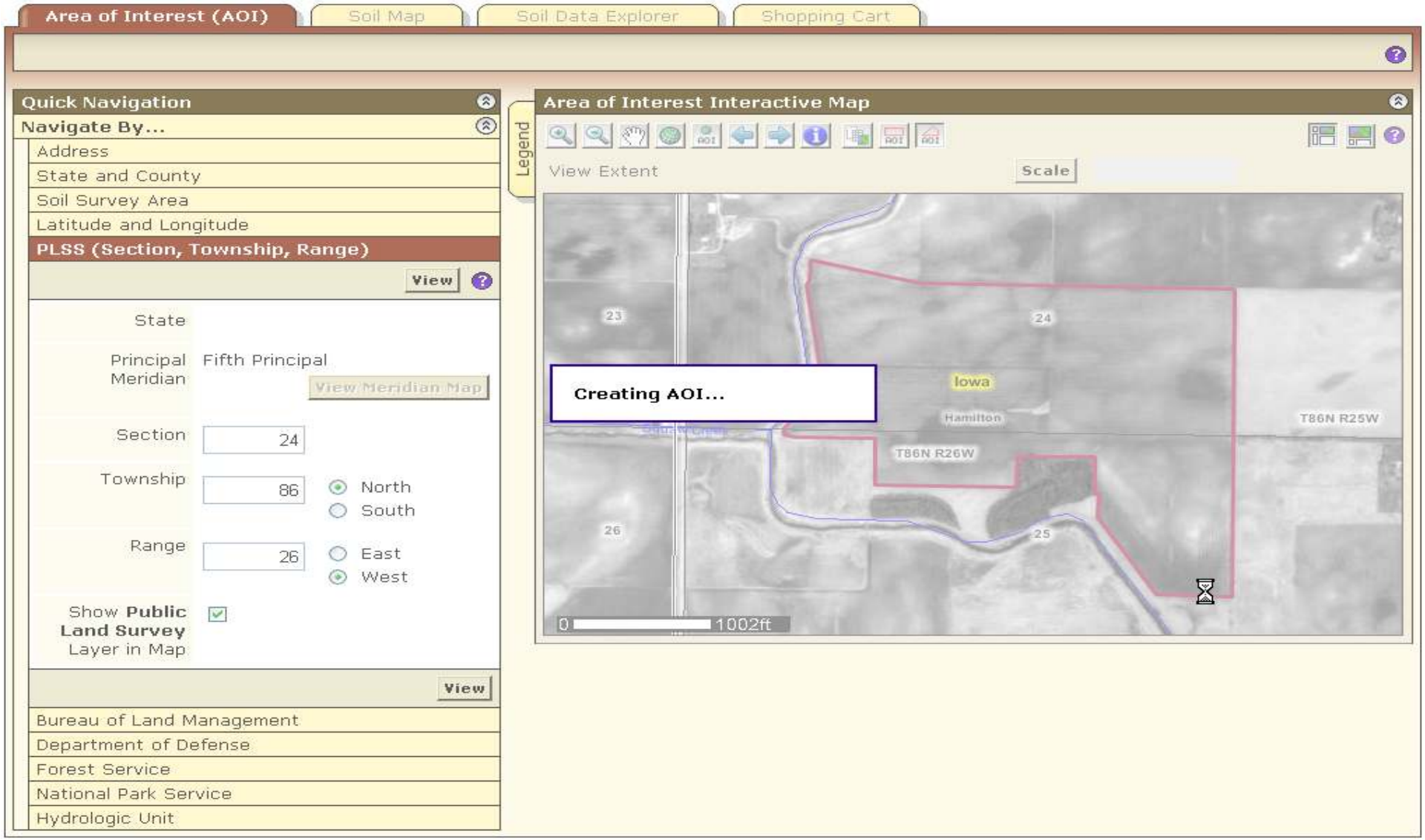


Navigate to an are of interest using one of several Federal land categories; BLM field office, Department of Defense installation, U.S. forest Service unit, or a National Park.

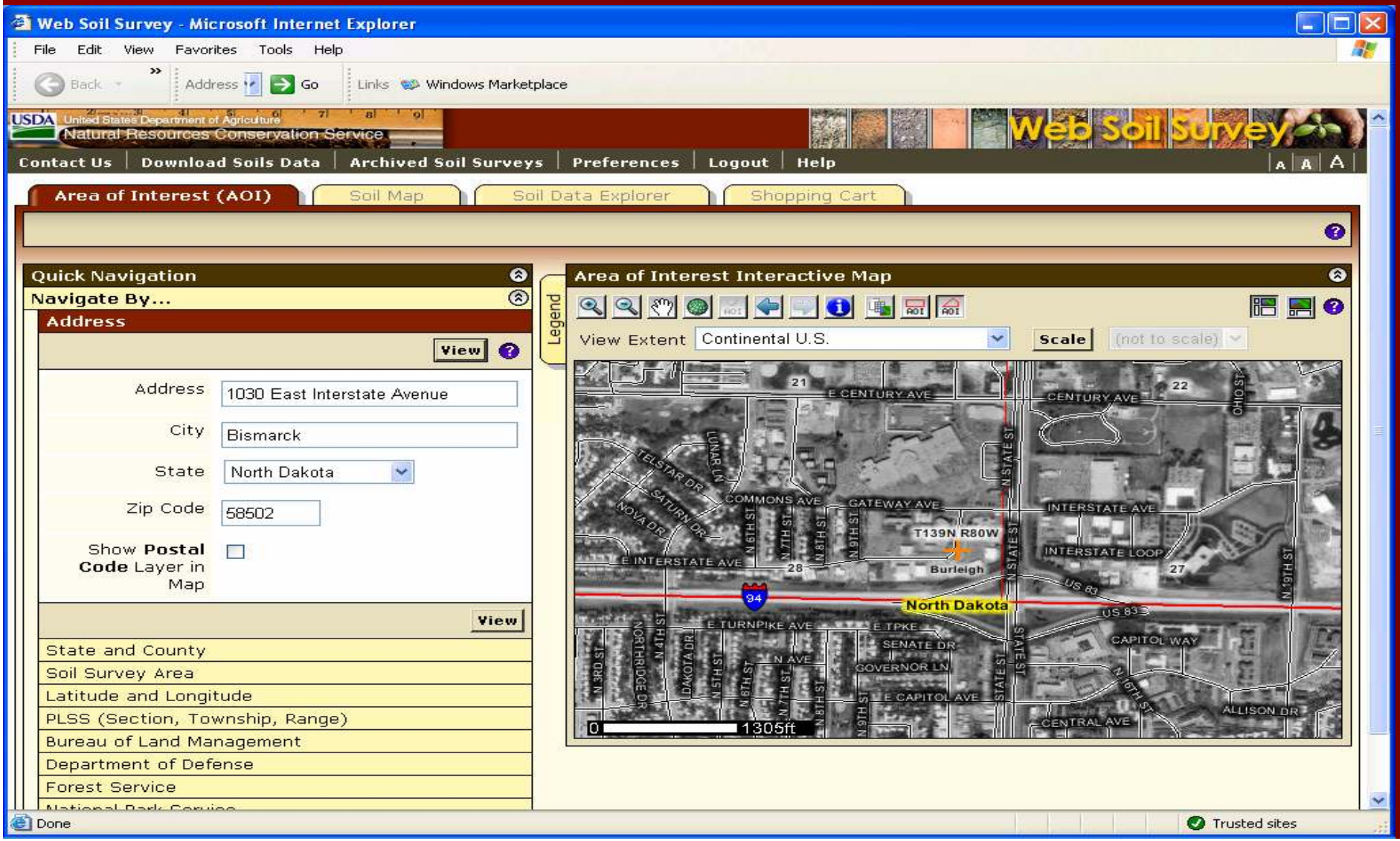


*The shifted AOI boundary has been corrected.

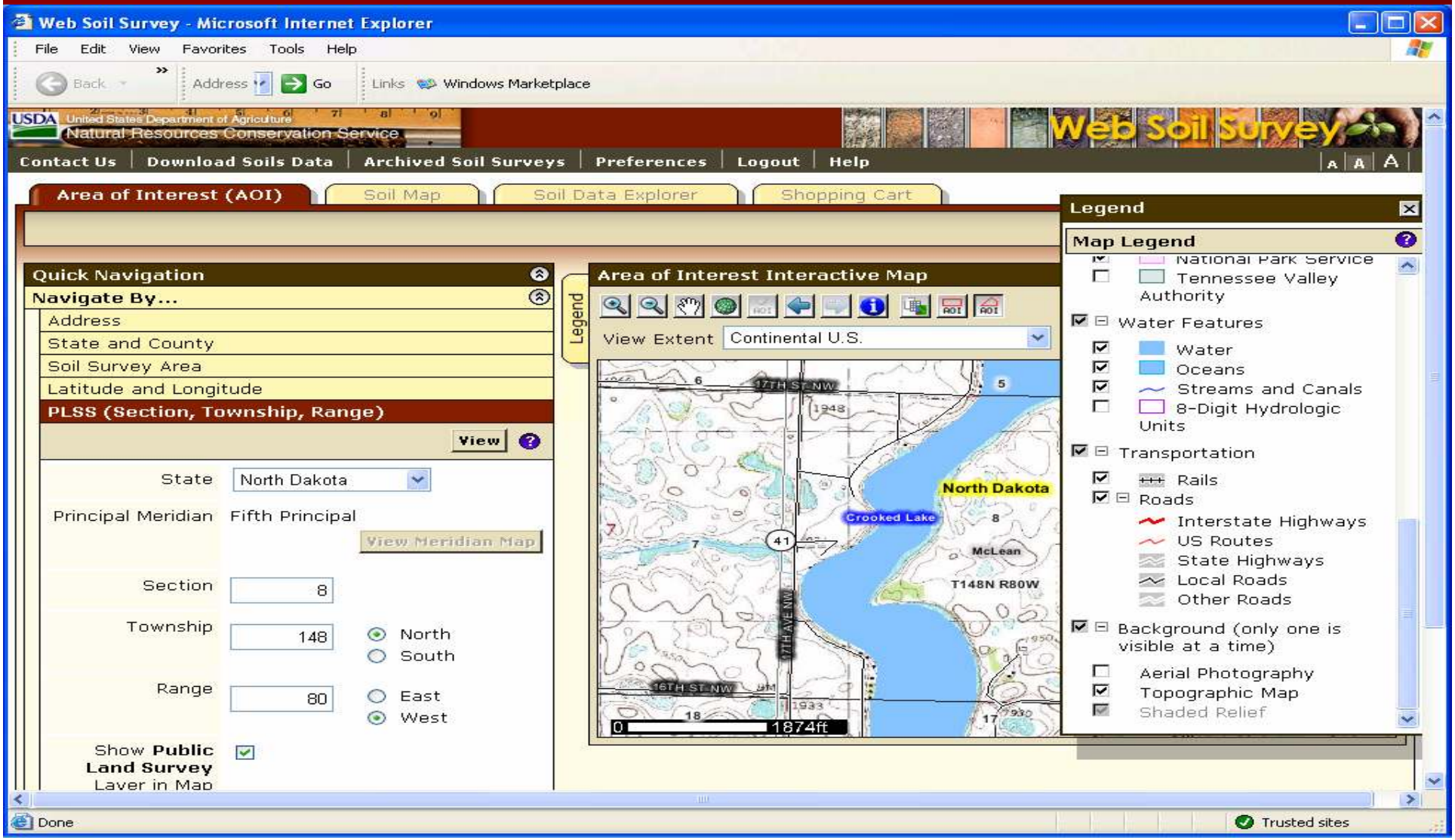
*To start over after beginning to draw the AOI, press the Escape key on your key board with out lifting the mouse button.



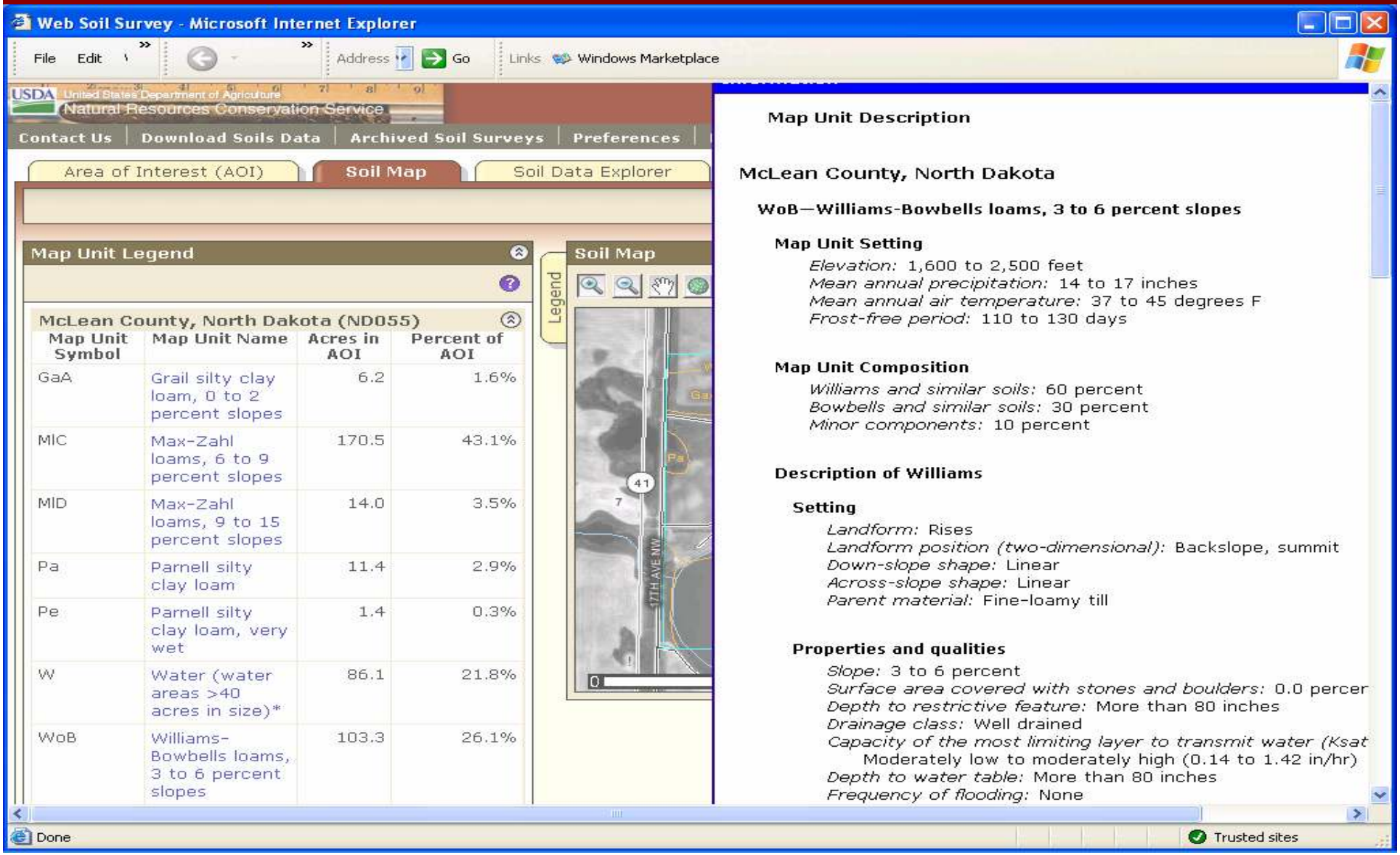
Location Marker – When you enter an address or latitude, a point marker appears as orange/red.



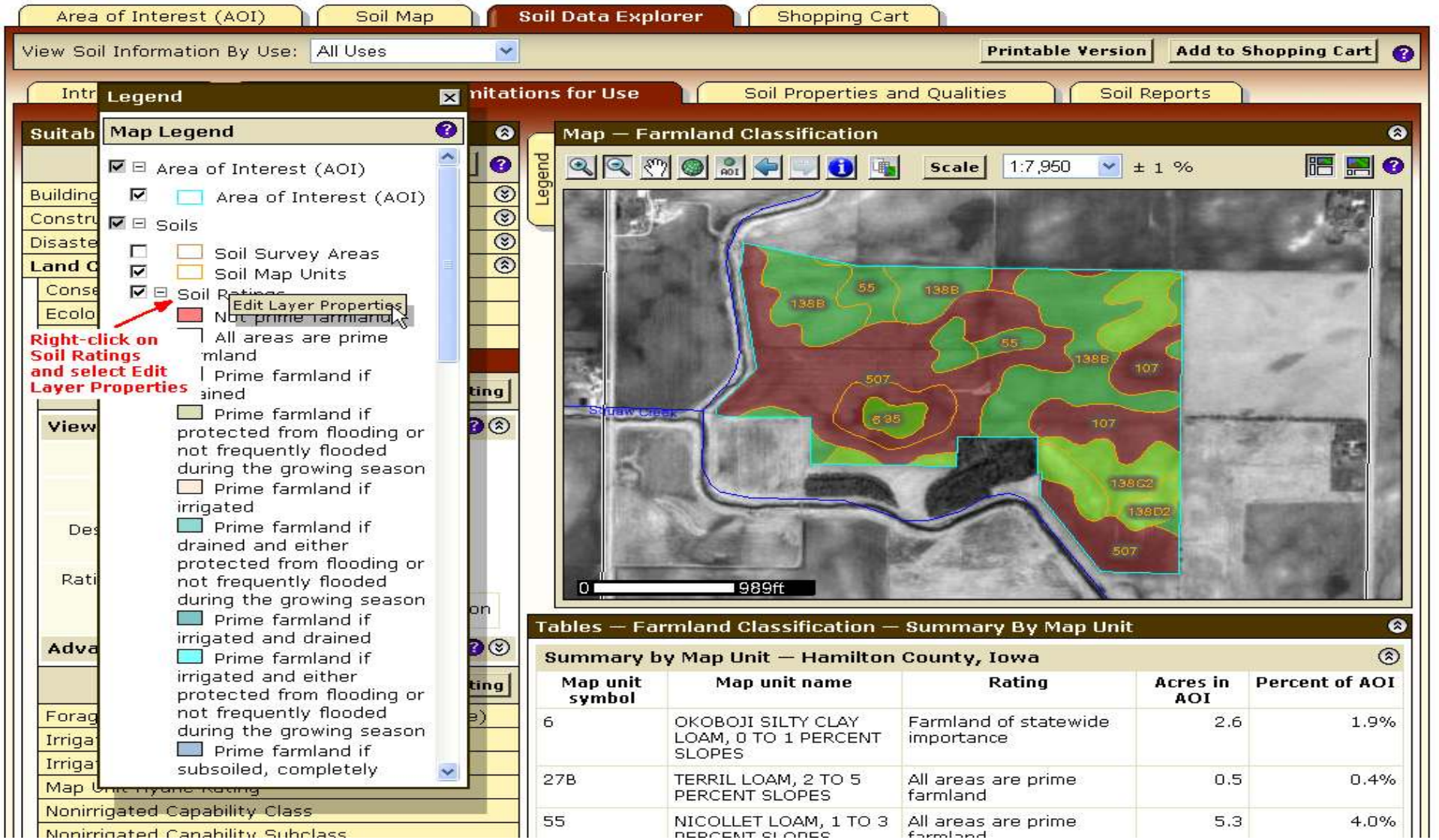
In addition to viewing your maps against aerial photography, now you can view you maps against a topographic backdrop.

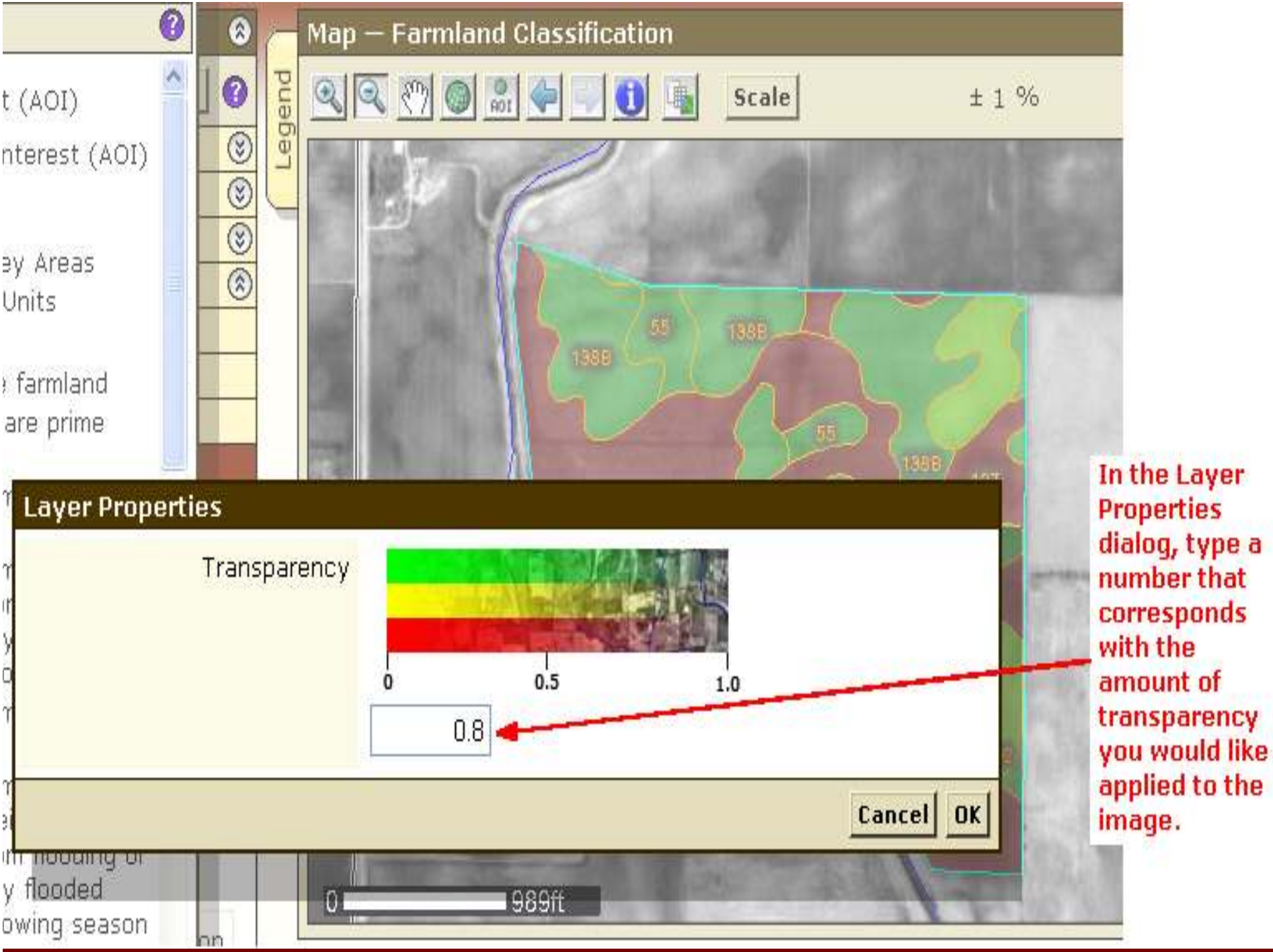


Click on the map unit name to display a “Map Unit Description” in a floating window.



This tab allows you to edit layer properties such as road labels, AOI hash marks and change the transparency level on ratings maps.




Map – Farmland Classification
Legend
Scale
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Layer Properties
Transparency
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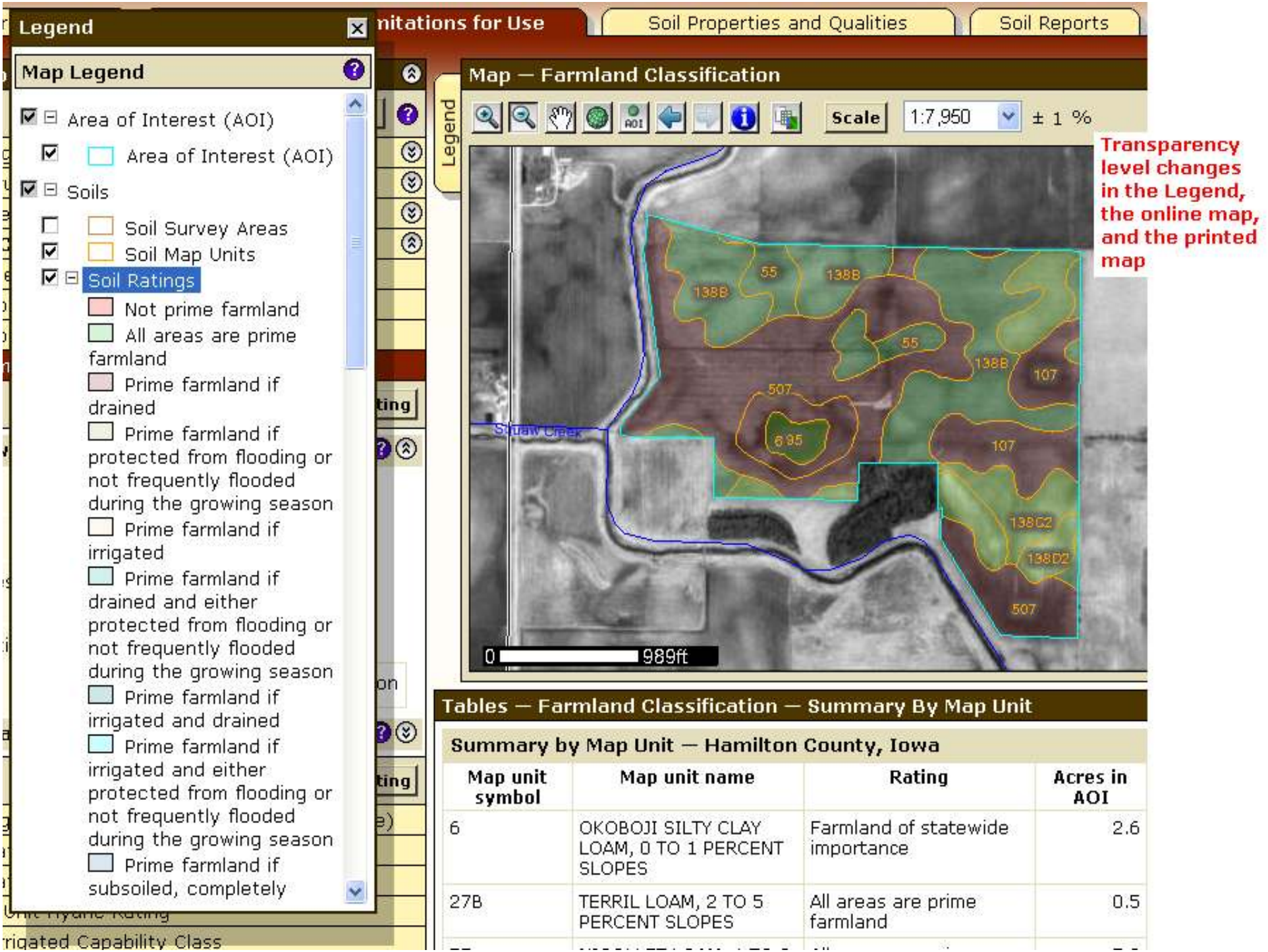
In the Layer Properties dialog, type a number that corresponds with the amount of transparency you would like applied to the image.



Map unit symbol	Map unit name	Rating	Acres in AOI
6	OKOBOJI SILTY CLAY LOAM, 0 TO 1 PERCENT SLOPES	Farmland of statewide importance	2.6
27B	TERRIL LOAM, 2 TO 5 PERCENT SLOPES	All areas are prime farmland	0.5

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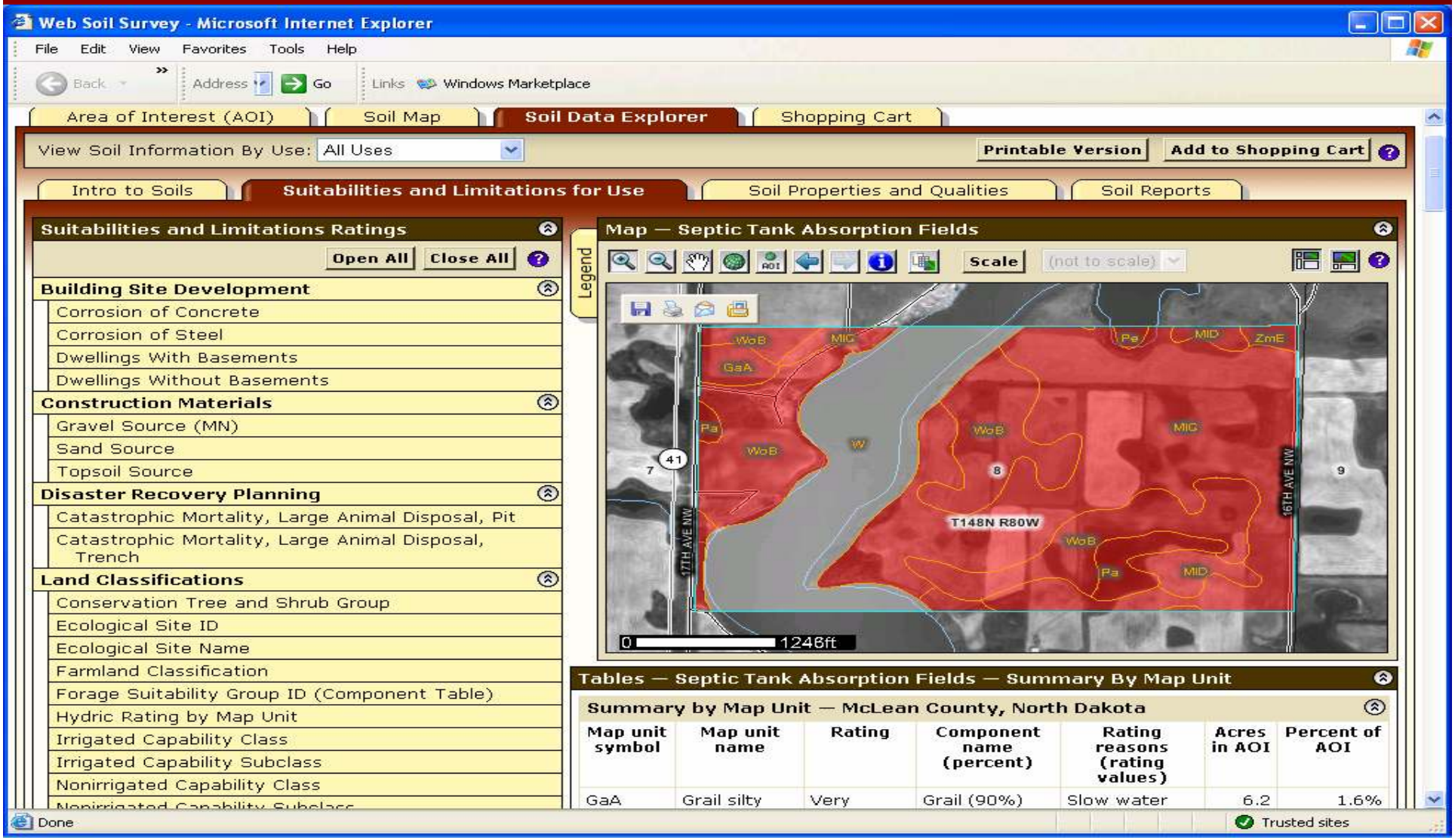
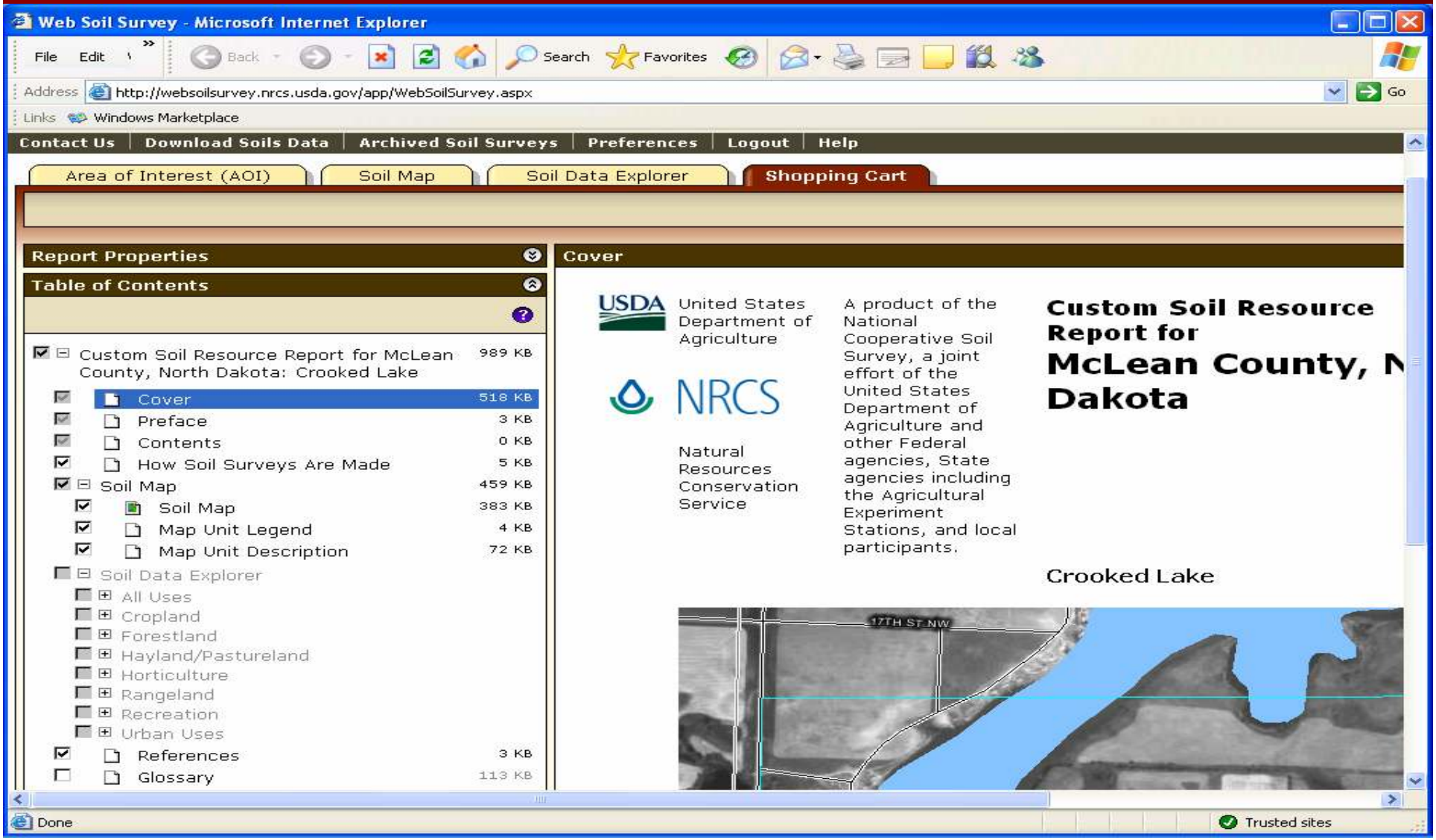


Custom Soil Resource Reports compile all your selected interpretations into one polished report.



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1 / 41 50% Find

Bookmarks

Options

- Cover
- Preface
- Contents
- How Soil Surveys Are Made
- Soil Map
  - Soil Map
  - Legend
  - Map Unit Legend
  - Map Unit Descriptions
    - McLean County, North Dakota
      - GaA—Grail silty clay loam, 0 to 2 percent slopes
      - MIC—Max-Zahl loams, 6 to 9 percent slopes
      - MID—Max-Zahl loams, 9 to 15 percent slopes
      - Pa—Parnell silty clay

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United States Department of Agriculture

NRCS Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

McLean County, North Dakota

Crooked Lake

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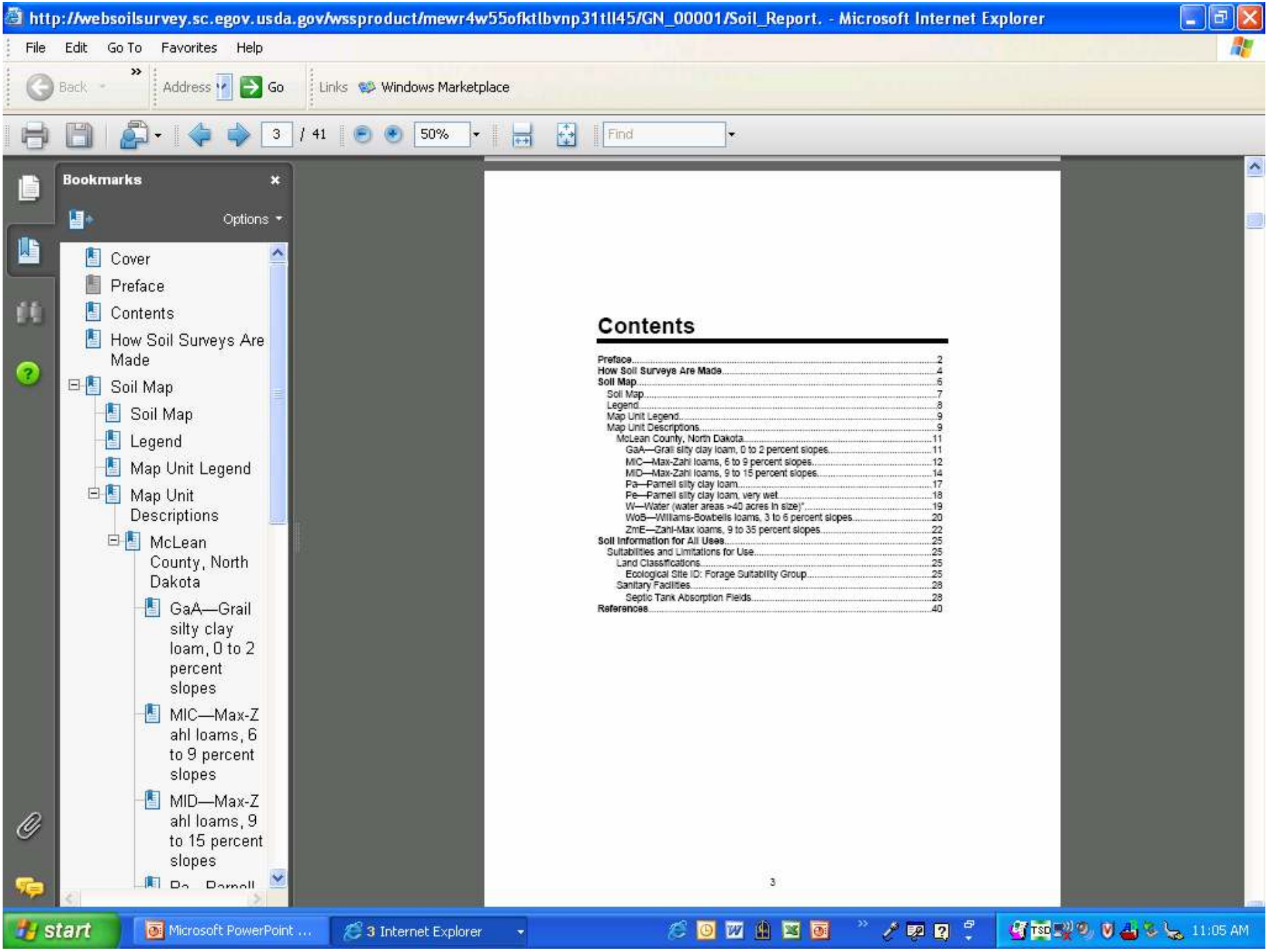
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File Edit Go To Favorites Help
Back Address Go Links Windows Marketplace
3 / 41 50% Find
Bookmarks
Options
Cover
Preface
Contents
How Soil Surveys Are Made
Soil Map
Soil Map
Legend
Map Unit Legend
Map Unit Descriptions
McLean County, North Dakota
GaA—Grail silty clay loam, 0 to 2 percent slopes
MIC—Max-Zahl loams, 6 to 9 percent slopes
MID—Max-Zahl loams, 9 to 15 percent slopes
Contents
Preface 2
How Soil Surveys Are Made 4
Soil Map 6
Soil Map 7
Legend 8
Map Unit Legend 9
Map Unit Descriptions 9
McLean County, North Dakota 11
GaA—Grail silty clay loam, 0 to 2 percent slopes 11
MIC—Max-Zahl loams, 6 to 9 percent slopes 12
MID—Max-Zahl loams, 9 to 15 percent slopes 14
Pa—Parnell silty clay loam 17
Pe—Parnell silty clay loam, very wet 18
W—Water (water areas >40 acres in size) 19
WoB—Williams-Bowbells loams, 3 to 6 percent slopes 20
ZmE—Zahl-Max loams, 9 to 35 percent slopes 22
Soil Information for All Uses 25
Suitabilities and Limitations for Use 25
Land Classifications 25
Ecological Site ID: Forage Suitability Group 25
Sanitary Facilities 28
Septic Tank Absorption Fields 28
References 40
3
start
Microsoft PowerPoint ...
3 Internet Explorer
11:05 AM

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

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7 / 41 75% Find

Bookmarks

Options

- Cover
- Preface
- Contents
- How Soil Surveys Are Made
- Soil Map
  - Soil Map
  - Legend
  - Map Unit Legend
  - Map Unit Descriptions
    - McLean County, North Dakota
      - GaA—Grail silty clay loam, 0 to 2 percent slopes
      - MIC—Max-Zahl loams, 6 to 9 percent slopes
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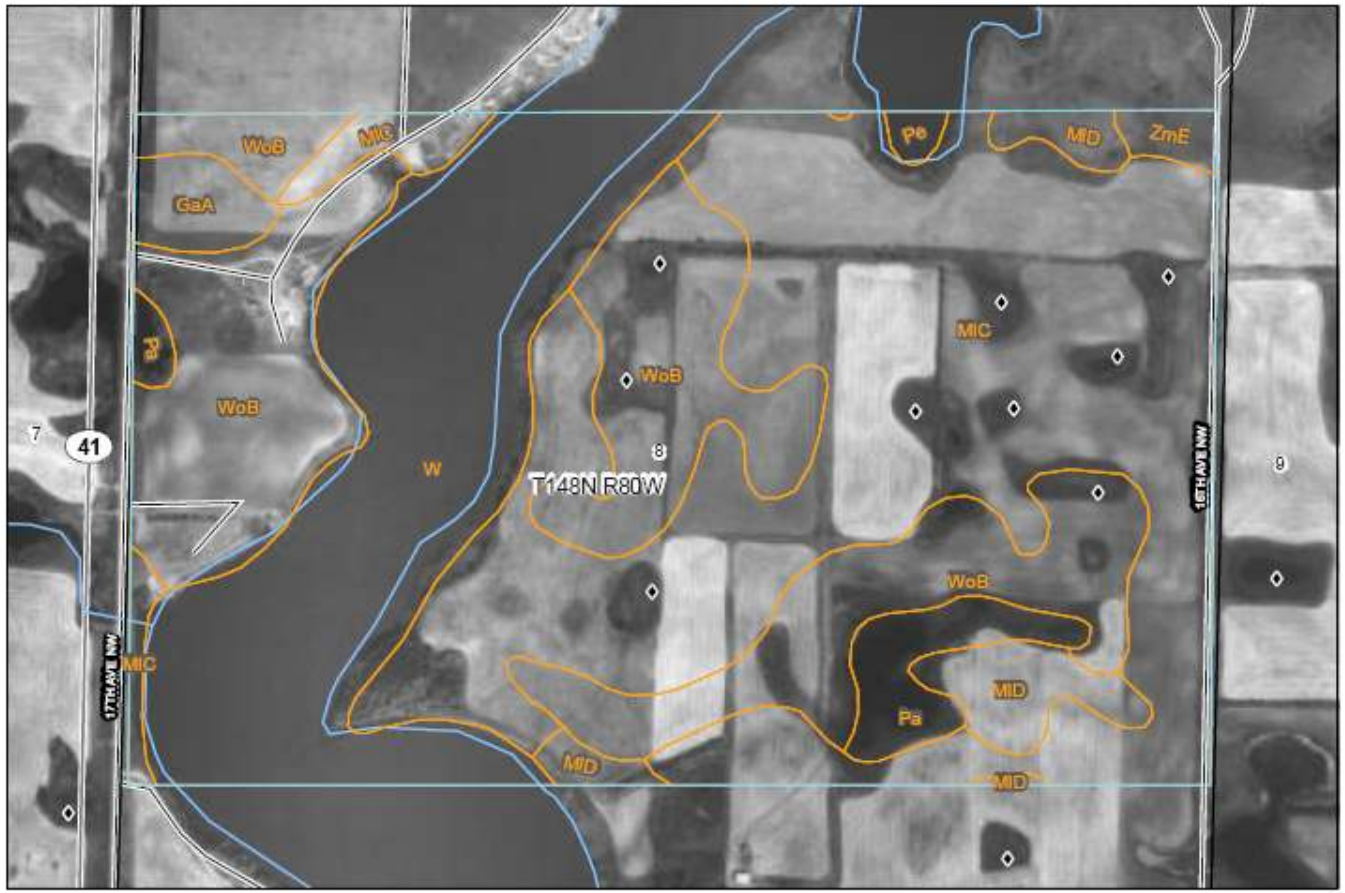
Soil Map



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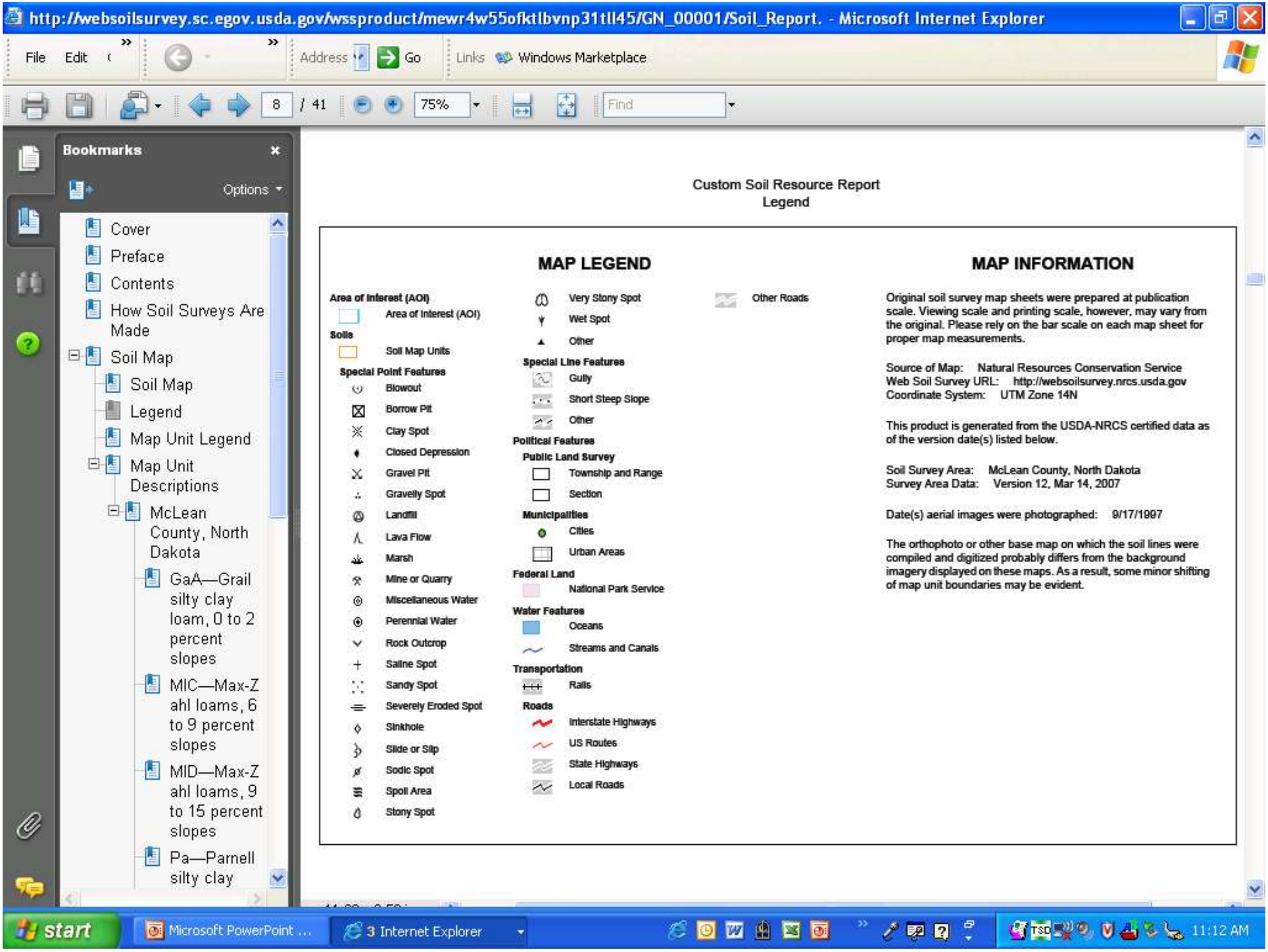
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File Edit
Address
Go
Links
Windows Marketplace
8 / 41
75%
Find
Bookmarks
Options
Cover
Preface
Contents
How Soil Surveys Are Made
Soil Map
Soil Map
Legend
Map Unit Legend
Map Unit Descriptions
McLean County, North Dakota
GaA—Grail silty clay loam, 0 to 2 percent slopes
MIC—Max-Zahl loams, 6 to 9 percent slopes
MID—Max-Zahl loams, 9 to 15 percent slopes
Pa—Parnell silty clay
Custom Soil Resource Report
Legend
MAP LEGEND
Area of Interest (AOI)
Area of Interest (AOI)
Soils
Soil Map Units
Special Point Features
Blowout
Borrow Pit
Clay Spot
Closed Depression
Gravel Pit
Gravelly Spot
Landfill
Lava Flow
Marsh
Mine or Quarry
Miscellaneous Water
Perennial Water
Rock Outcrop
Saline Spot
Sandy Spot
Severely Eroded Spot
Sinkhole
Slide or Slip
Sodic Spot
Spoil Area
Stony Spot
Very Stony Spot
Wet Spot
Other
Special Line Features
Gully
Short Steep Slope
Other
Political Features
Public Land Survey
Township and Range
Section
Municipalities
Cities
Urban Areas
Federal Land
National Park Service
Water Features
Oceans
Streams and Canals
Transportation
Rails
Roads
Interstate Highways
US Routes
State Highways
Local Roads
Other Roads
MAP INFORMATION
Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.
Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 14N
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Soil Survey Area: McLean County, North Dakota
Survey Area Data: Version 12, Mar 14, 2007
Date(s) aerial images were photographed: 9/17/1997
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.
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3 Internet Explorer
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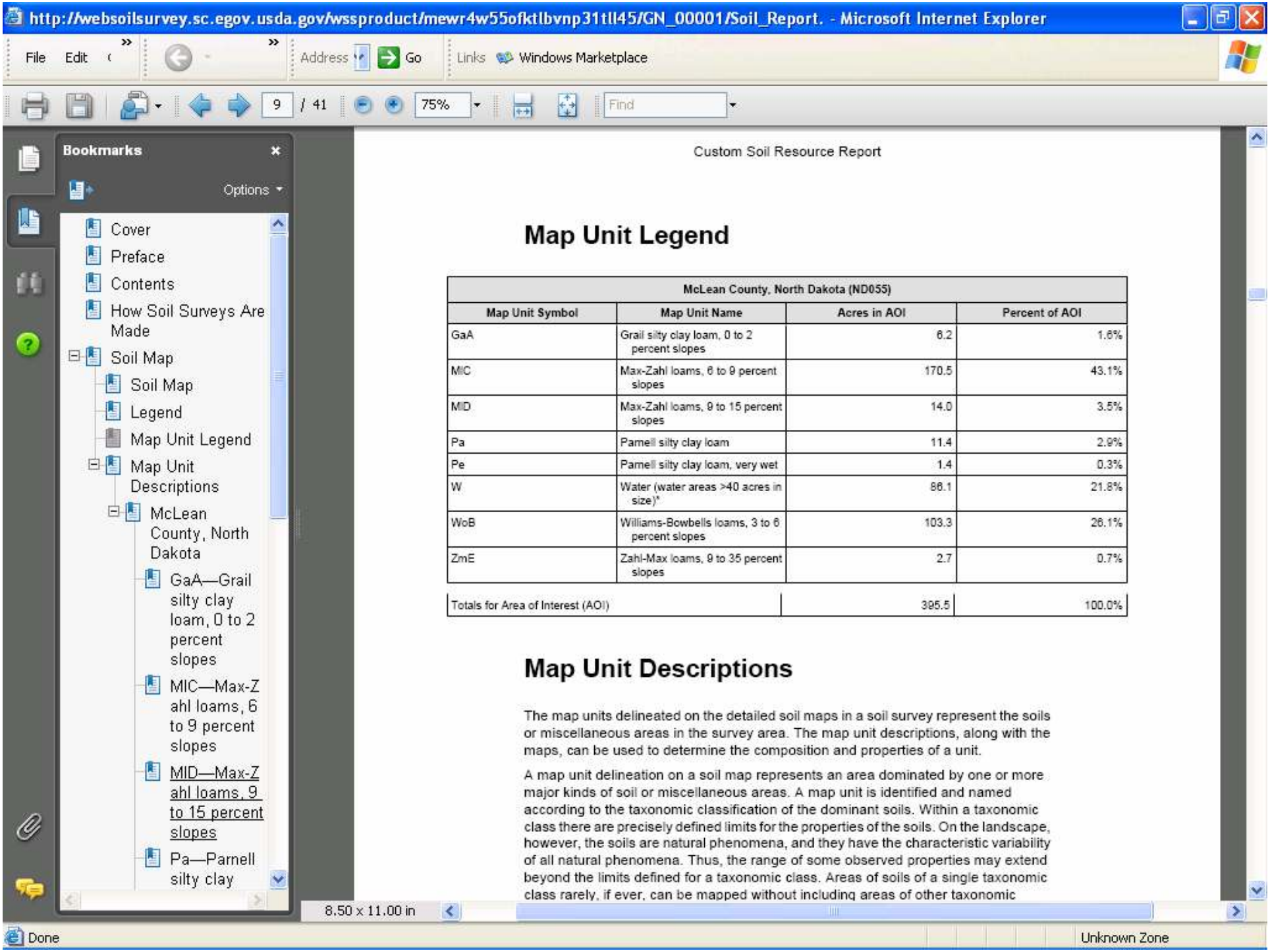
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File Edit
Address
Go
Links
Windows Marketplace
9 / 41
75%
Find
Bookmarks
Options
Cover
Preface
Contents
How Soil Surveys Are Made
Soil Map
Soil Map
Legend
Map Unit Legend
Map Unit Descriptions
McLean County, North Dakota
GaA—Grail silty clay loam, 0 to 2 percent slopes
MIC—Max-Zahl loams, 6 to 9 percent slopes
MID—Max-Zahl loams, 9 to 15 percent slopes
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Custom Soil Resource Report
Map Unit Legend
McLean County, North Dakota (ND055)
Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI
GaA | Grail silty clay loam, 0 to 2 percent slopes | 6.2 | 1.6%
MIC | Max-Zahl loams, 6 to 9 percent slopes | 170.5 | 43.1%
MID | Max-Zahl loams, 9 to 15 percent slopes | 14.0 | 3.5%
Pa | Parnell silty clay loam | 11.4 | 2.9%
Pe | Parnell silty clay loam, very wet | 1.4 | 0.3%
W | Water (water areas >40 acres in size)* | 86.1 | 21.8%
WoB | Williams-Bowbells loams, 3 to 6 percent slopes | 103.3 | 26.1%
ZmE | Zahl-Max loams, 9 to 35 percent slopes | 2.7 | 0.7%
Totals for Area of Interest (AOI) | 395.5 | 100.0%
Map Unit Descriptions
The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.
A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic
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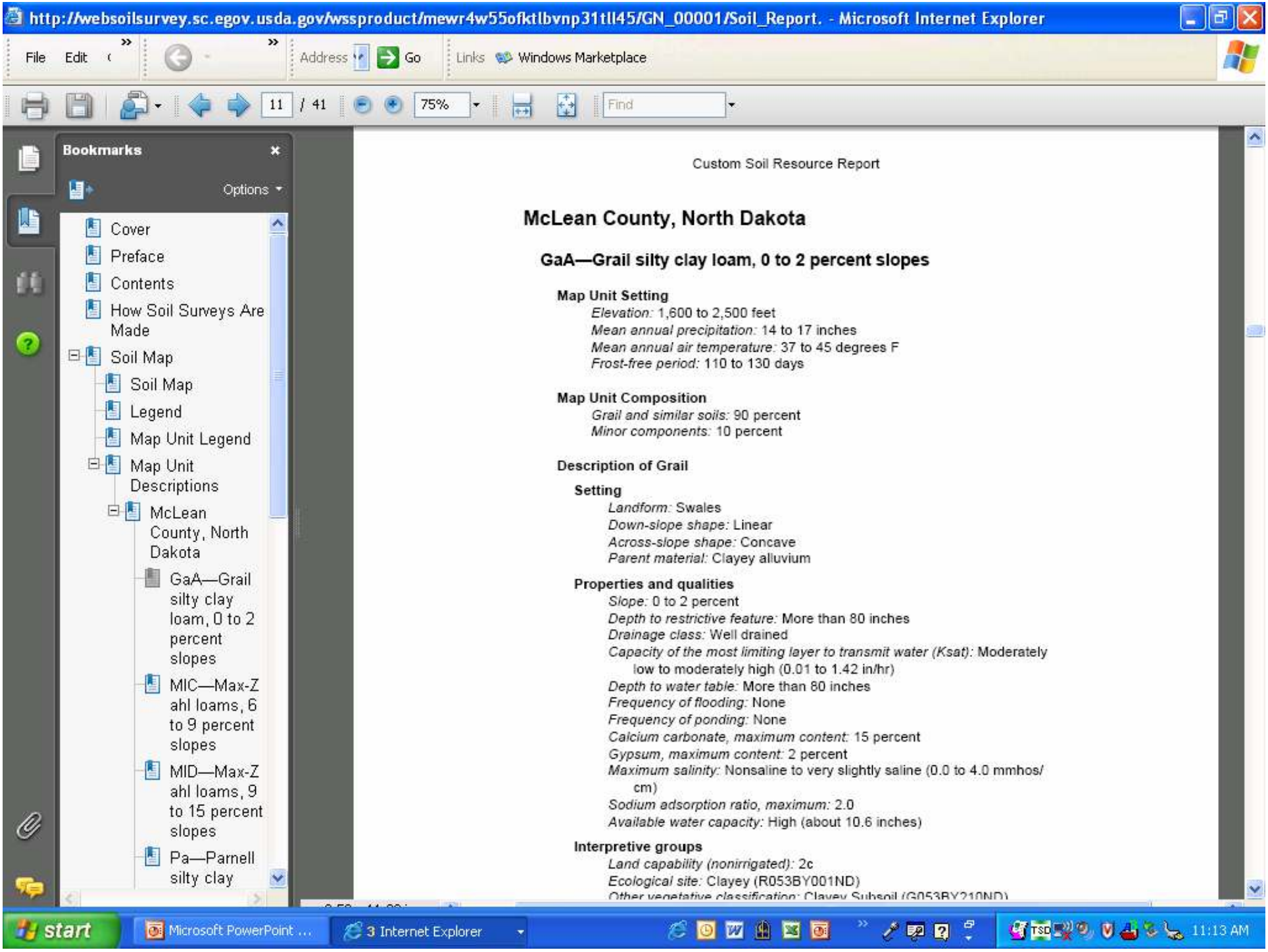
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File Edit
Address
Go
Links
Windows Marketplace
11 / 41
75%
Find
Bookmarks
Options
Cover
Preface
Contents
How Soil Surveys Are Made
Soil Map
Soil Map
Legend
Map Unit Legend
Map Unit Descriptions
McLean County, North Dakota
GaA—Grail silty clay loam, 0 to 2 percent slopes
MIC—Max-Zahl loams, 6 to 9 percent slopes
MID—Max-Zahl loams, 9 to 15 percent slopes
Pa—Parnell silty clay
Custom Soil Resource Report
McLean County, North Dakota
GaA—Grail silty clay loam, 0 to 2 percent slopes
Map Unit Setting
Elevation: 1,600 to 2,500 feet
Mean annual precipitation: 14 to 17 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 110 to 130 days
Map Unit Composition
Grail and similar soils: 90 percent
Minor components: 10 percent
Description of Grail
Setting
Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Clayey alluvium
Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: High (about 10.6 inches)
Interpretive groups
Land capability (nonirrigated): 2c
Ecological site: Clayey (R053BY001ND)
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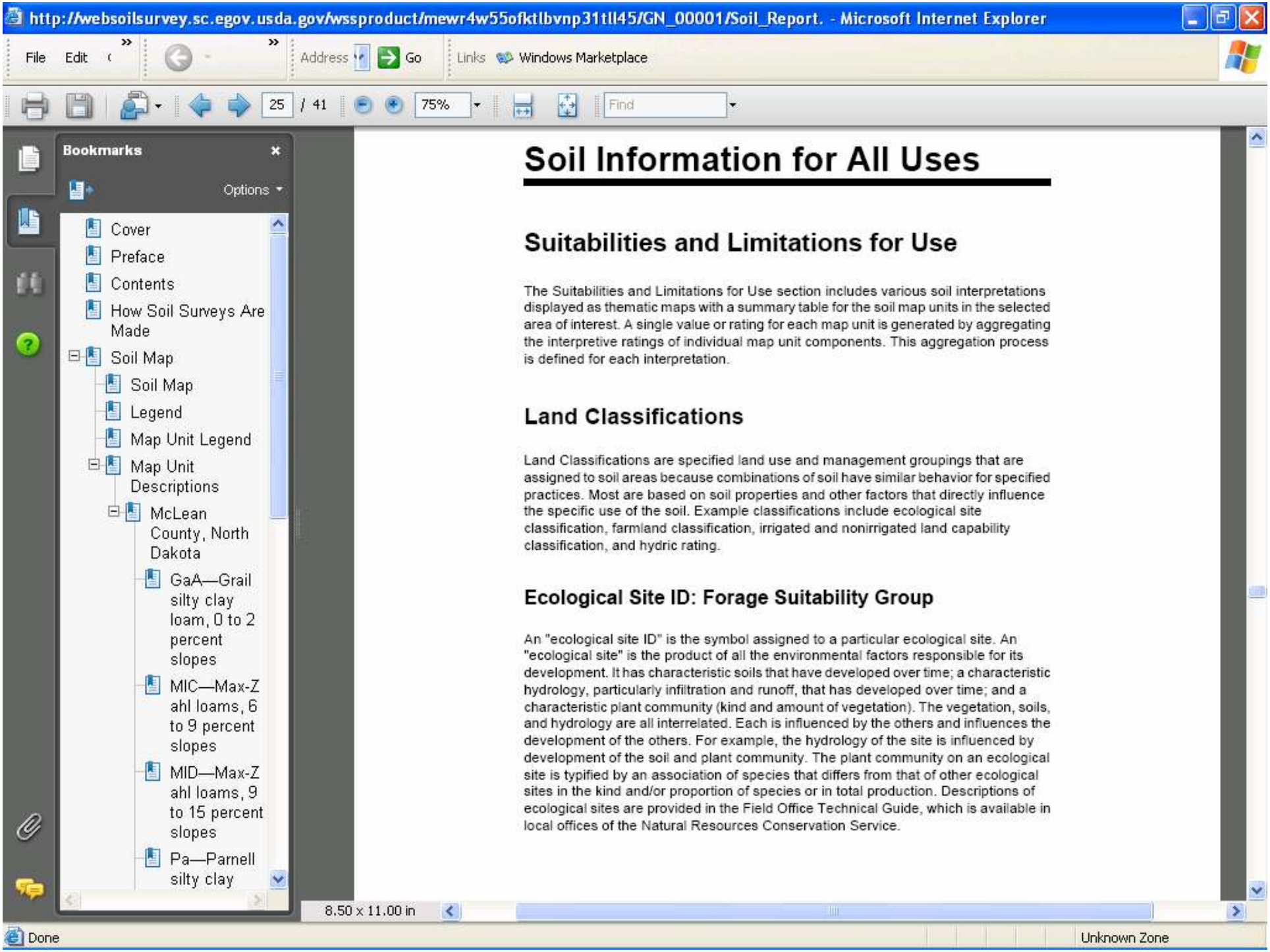
3 Internet Explorer
11:13 AM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File Edit
Address
Go
Links
Windows Marketplace
25 / 41
75%
Find
Bookmarks
Options
Cover
Preface
Contents
How Soil Surveys Are Made
Soil Map
Soil Map
Legend
Map Unit Legend
Map Unit Descriptions
McLean County, North Dakota
GaA—Grail silty clay loam, 0 to 2 percent slopes
MIC—Max-Zahl loams, 6 to 9 percent slopes
MID—Max-Zahl loams, 9 to 15 percent slopes
Pa—Parnell silty clay
Soil Information for All Uses
Suitabilities and Limitations for Use
The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.
Land Classifications
Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.
Ecological Site ID: Forage Suitability Group
An "ecological site ID" is the symbol assigned to a particular ecological site. An "ecological site" is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. For example, the hydrology of the site is influenced by development of the soil and plant community. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.
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26 / 41 75% Find

Bookmarks

Options

- Cover
- Preface
- Contents
- How Soil Surveys Are Made
- Soil Map
  - Soil Map
  - Legend
  - Map Unit Legend
  - Map Unit Descriptions
    - McLean County, North Dakota
      - GaA—Grail silty clay loam, 0 to 2 percent slopes
      - MIC—Max-Zahl loams, 6 to 9 percent slopes
      - MID—Max-Zahl loams, 9 to 15 percent slopes
      - Pa—Parnell silty clay

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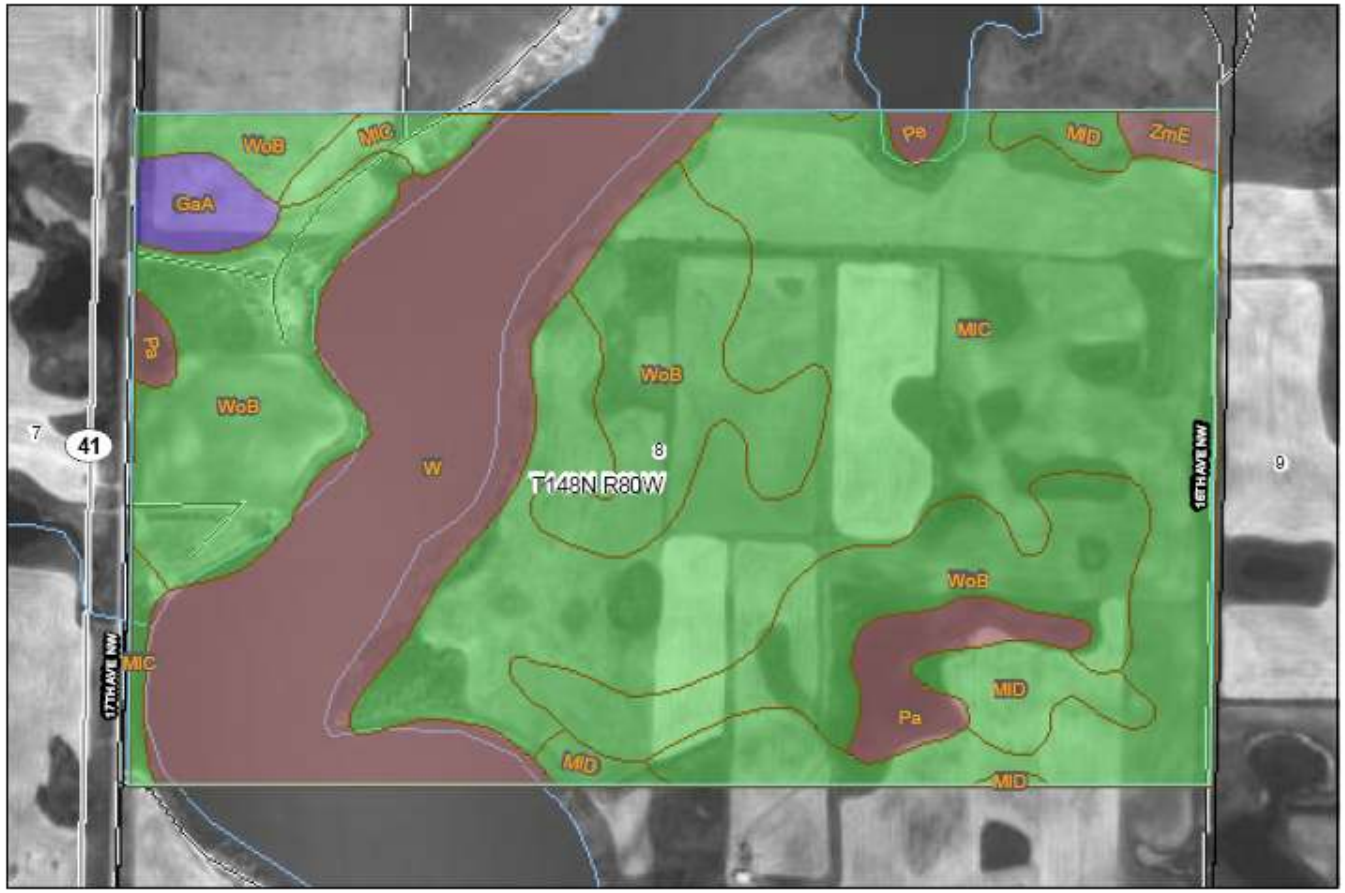
Map—Ecological Site ID: Forage Suitability Group



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MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Soil Ratings
- G053BY000ND
- G053BY100ND
- G053BY210ND
- Not rated or not available

Political Features

Public Land Survey
- Township and Range
- Section

Municipalities
- Cities
- Urban Areas

Federal Land
- National Park Service

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails

Roads
- Interstate Highways
- US Routes
- State Highways
- Local Roads
- Other Roads

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Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 14N

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Soil Survey Area: McLean County, North Dakota
Survey Area Data: Version 12, Mar 14, 2007

Date(s) aerial images were photographed: 9/17/1997

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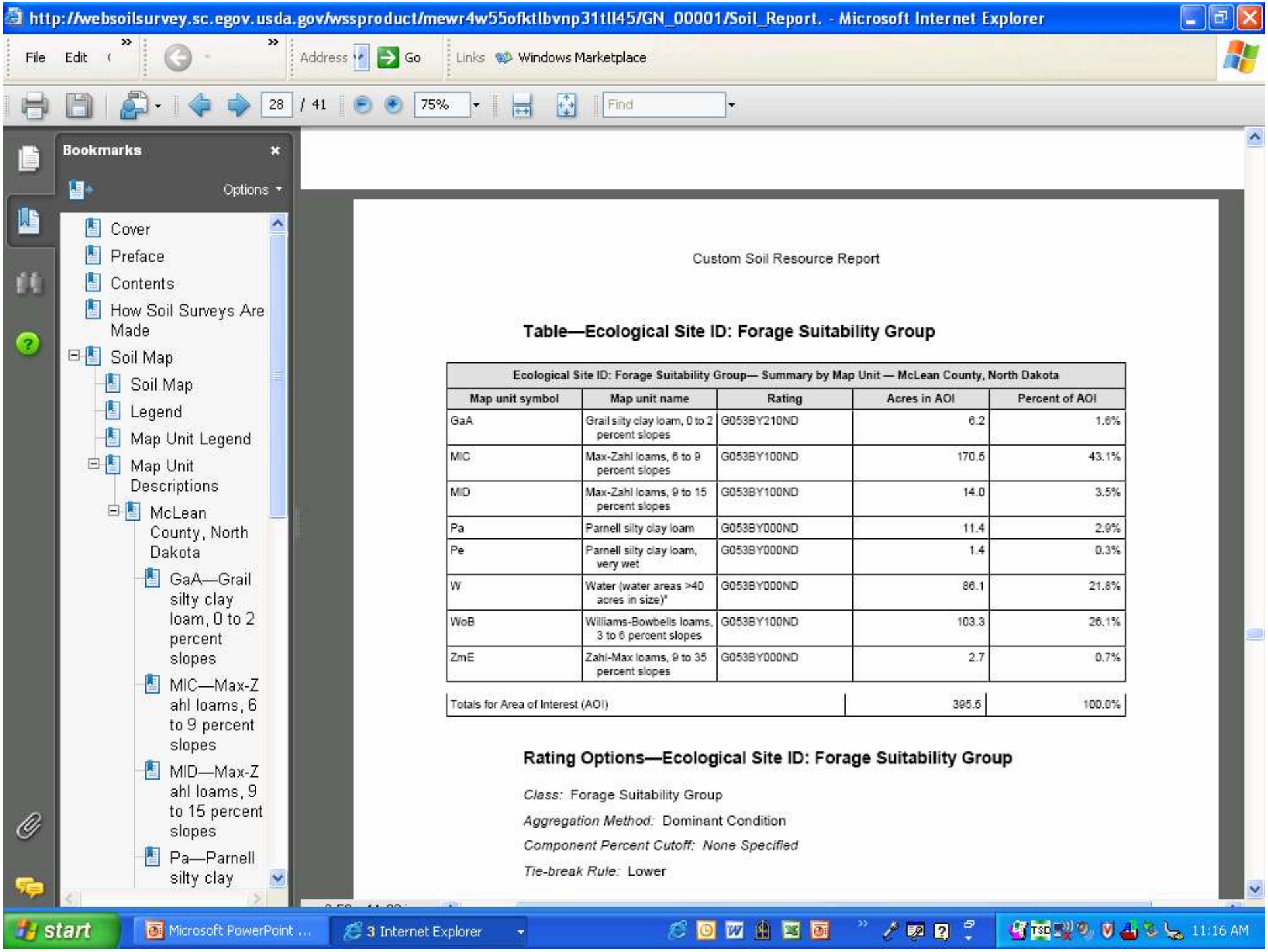
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File Edit
Address
Go
Links
Windows Marketplace
28 / 41
75%
Find
Bookmarks
Options
Cover
Preface
Contents
How Soil Surveys Are Made
Soil Map
Soil Map
Legend
Map Unit Legend
Map Unit Descriptions
McLean County, North Dakota
GaA—Grail silty clay loam, 0 to 2 percent slopes
MIC—Max-Zahl loams, 6 to 9 percent slopes
MID—Max-Zahl loams, 9 to 15 percent slopes
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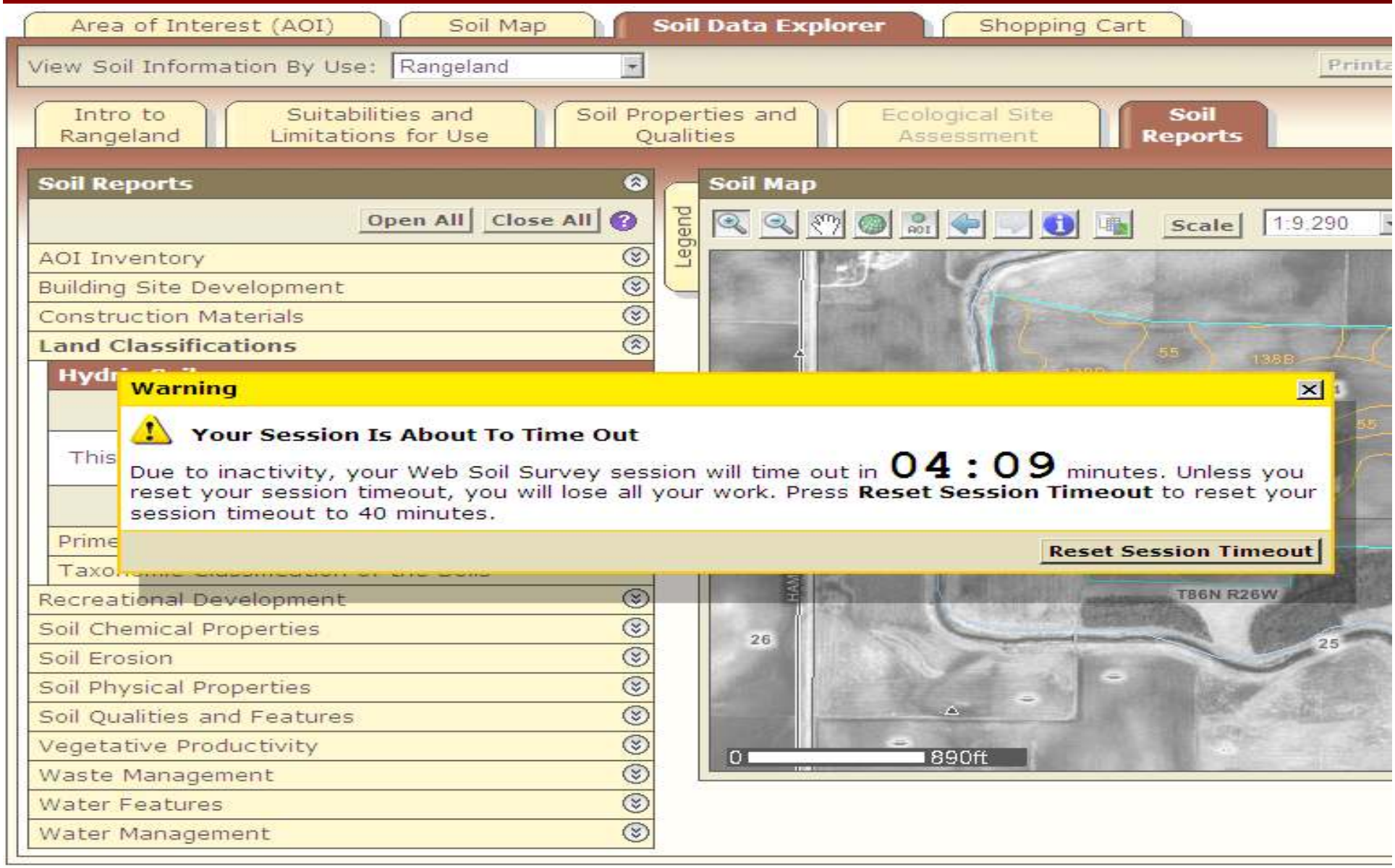
Custom Soil Resource Report
Table—Ecological Site ID: Forage Suitability Group
Ecological Site ID: Forage Suitability Group— Summary by Map Unit — McLean County, North Dakota
Map unit symbol | Map unit name | Rating | Acres in AOI | Percent of AOI
GaA | Grail silty clay loam, 0 to 2 percent slopes | G053BY210ND | 6.2 | 1.6%
MIC | Max-Zahl loams, 6 to 9 percent slopes | G053BY100ND | 170.5 | 43.1%
MID | Max-Zahl loams, 9 to 15 percent slopes | G053BY100ND | 14.0 | 3.5%
Pa | Parnell silty clay loam | G053BY000ND | 11.4 | 2.9%
Pe | Parnell silty clay loam, very wet | G053BY000ND | 1.4 | 0.3%
W | Water (water areas >40 acres in size)* | G053BY000ND | 86.1 | 21.8%
WoB | Williams-Bowbells loams, 3 to 6 percent slopes | G053BY100ND | 103.3 | 26.1%
ZmE | Zahl-Max loams, 9 to 35 percent slopes | G053BY000ND | 2.7 | 0.7%
Totals for Area of Interest (AOI) | 395.5 | 100.0%
Rating Options—Ecological Site ID: Forage Suitability Group
Class: Forage Suitability Group
Aggregation Method: Dominant Condition
Component Percent Cutoff: None Specified
Tie-break Rule: Lower
start
Microsoft PowerPoint ...
3 Internet Explorer
11:16 AM

Session timeout increased from 20 to 40 minutes



You Speak – We'll Listen

Web Soil Survey

http://www.websoilsurvey.nrcs.usda.gov/app/